

What is claimed is:

1. A method comprising:
providing first and second outphased signals that are shared by a phase
lock loop and an automatic level control loop.
2. A method of claim 1, further comprising:
generating an output signal according to the first and the second
outphased signals.
3. The method of claim 2, further comprising:
controlling an instantaneous amplitude of the output signal by varying
an amplitude and varying a phase difference of the first and the second
outphased signals according to an amplitude error of the output signal; and
varying a phase of the first and the second outphased signals according
to a phase error signal of the output signal.
4. The method of claim 3, further comprising:
generating the amplitude error signal and the phase error signal
according to an input signal and the output signal,
generating a first control signal of the automatic level control loop
according to the amplitude error of the output signal; and
generating a second control signal of the automatic level control loop
determined, at least in part, by an adaptive function of the amplitude error
signal.
5. The method of claim 4, further comprising:
varying the amplitudes of the first and the second outphased signals
with a first range of the amplitude error of the output signal; and
varying the phase difference of the first and the second outphased
signals with a second range of the amplitude error of the output signal.

6. The method of claim 5, further comprising:

transmitting the output signal at an average power level which is substantially equivalent to a targeted power level.

- 5 7. The method of claim 6, further comprising:

selecting the targeted power level from a first and a second power levels.

8. A method comprising:

10 controlling an instantaneous amplitude of an output signal by varying a phase difference and an amplitude of first and second outphased signals according to first and second control signals; and

setting a phase to the first and the second outphased signals according to a phase of an envelope signal.

- 15 9. The method of claim 8, further comprising:

generating the envelope signal according to a phase of an input signal;

generating the first and the second control signals according to an adaptive function determined, at least in part, on an instantaneous amplitude of the input signal; and

20 combining the first and the second outphased signals to provide an output signal at an average power level that is substantially equivalent to a targeted power level.

- 25 10. The method of claim 9, wherein generating the first and the second control signal comprises:

manipulating the instantaneous amplitude of the input signal with the targeted power level, wherein the targeted power level is selected from first and second power levels.

30

11. The method of claim 10, comprising:

varying amplitudes of the first and the second outphased signals at a first range of the instantaneous amplitude; and

varying the phase difference of the first and the second outphased signals at a second range of the instantaneous amplitude.

12. A method comprising:

generating first and second control signals according to an adaptive function determined, at least in part, by an instantaneous amplitude of a predistorted signal; and

varying a phase difference and an amplitude of the first and the second outphased signals according to the first and the second control signals.

13. The method of claim 12, further comprising:

generating an envelope signal according to a phase of the predistorted signal; and

varying a phase of the first and the second outphased signals according to the envelope signal.

14. The method of claim 12, further comprising:

combining the first and the second outphased signals to provide an output signal at an average power level which is substantially equivalent to a targeted power level; and

generating the predistorted signal to compensate for distortion at the output signal.

15. The method of claim 14, wherein generating the first and the second control signal comprises:

manipulating the instantaneous amplitude of the input signal with the targeted power level, wherein the targeted power level is selected from first and second power levels.

16. An apparatus comprising:

a coupler to provide a feedback signal of an output signal to a phase lock loop and an automatic level control loop;

an outphased signal generator and a power amplifier that are shared by the phase lock loop and the automatic level control loop; and

a dipole antenna to transmit the output signal according to a targeted power level.

17. The apparatus of claim 16, wherein the phase lock loop further comprises:

a phase error detector which is adapted to provide a phase error signal according to an input signal and the output signal; and

a signal generator to generate a envelope signal according to the phase error signal.

18. The apparatus of claim 17, wherein the automatic level control loop comprises:

an amplitude error detector to provide an amplitude error signal according to the input signal and the output signal; and

a control signal generator to generate first and second control signals according to the amplitude error signal, wherein the first control signal is determined, at least in part, by the amplitude error signal and the second control signal is determined, at least in part, by an adaptive function of the amplitude error signal.

19. The apparatus of claim 18, wherein the second control signal are adapted to vary amplitudes of the first and the second outphased signals at a first range of the amplitude error signal and to vary a phase difference of the first and the second outphased signals at a second range of the amplitude error signal.

20. The apparatus of claim 16, wherein the power amplifier further comprises:
first and second power amplifiers which are adapted to amplify the first
and the second outphased signals; and
a combiner which is adapted to combine the first and the second
5 amplified outphased signals.
21. The apparatus of claim 20 wherein the targeted power level is to be selected
from first and second power levels.
- 10 22. An apparatus comprising:
a control signal generator to generate first and second control signals
according to an adaptive function determined, at least in part, by an
instantaneous amplitude of an input signal; and
an outphasing signal generator to generate first and second outphased
15 signals according to the first and the second control signals and a constant
envelope signal.
23. The apparatus of claim 22, further comprising:
a power amplifier to provide an output signal according to the first and
20 the second outphased signals and to transmit the output signal at an average
power level which is substantially equivalent to a targeted power level.
24. The apparatus of claim 23, wherein the first and the second control signals are
adapted to vary amplitudes of the first and the second outphased signals at a
25 first range of the instantaneous amplitude and to vary a phase difference of the
first and the second outphased signals at a second range of the instantaneous
amplitude.

25. The apparatus of claim 24, wherein the control signal generator is further adapted to manipulate the instantaneous amplitude of the input signal with the targeted power level, wherein the targeted power level is selected from first and second power levels.

5

26. An apparatus comprising:

a signal generator which is adapted to generate an envelope signal according to a phase of a baseband signal;

a control signal generator to generate first and second control signals according to an adaptive function determined, at least in part, by an instantaneous amplitude of a baseband signal.

10

27. The apparatus of claim 26 further comprising:

an outphasing signal generator to generate the first and the second outphased signals according to the first and the second control signals and according to the envelope signal, wherein the first and the second outphased signals comprise a phase which is provided by the envelope signal, a variable phase difference and a variable amplitude which varies according to the first and the second control signals.

15

28. The apparatus of claim 27 further comprising:

a power amplifier which is adapted to provide an output signal according to the first and the second outphased signals at an average power level which is substantially equivalent to a targeted power level.

20

29. The apparatus of claim 28, wherein the control signal generator is further adapted to manipulate the instantaneous amplitude of the input signal with the targeted power level, wherein the targeted power level is selected from first and second power levels.

25